

Abstract of the Disclosure

In a small-shank cutting tool for an automatic lathe or like turning machine, the tool shank defines at least one tool-supporting region having a width of less than 9 mm on a tool-supporting end of the shank. The tool-supporting region defines a tool recess formed by two tool-supporting surfaces oriented at an acute angle relative to each other. A rhomboidal-shaped tool insert of the cutting tool is seated within the tool recess of the shank with two sides of the insert each engaging a respective tool-supporting surface of the shank, and a substantial portion of the other two sides of the insert extending beyond the end of the shank and forming a cutting tip for cutting a workpiece. The rhomboidal-shaped insert defines an inscribed circle having a diameter less than approximately 6 mm, and a fastener aperture extending through the approximate center of the inscribed circle defining a diameter less than that of the inscribed circle, in order to provide sufficient space on the tool-supporting region of the shank to form at least two supporting surfaces for engaging and supporting the rhomboidal insert along a substantial portion of each of two sides. A threaded fastener of the cutting tool extends through the fastener aperture and is threadedly attached to the tool shank for fixedly attaching the tool insert to the tool shank. The threaded fastener is preferably a counter-sunk torque screw, and defines a maximum head diameter less than approximately 70% of the diameter of the inscribed circle in order to maintain sufficient structural integrity of the insert to avoid failure during machining operations.